The Maryland Fruit Grower

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Edited by the Secretary, A. F. Vierheller, Extension Horticulturist

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ANNUAL PROCEEDINGS

The Proceedings of the Forty-First Annual Meeting of the Society at Frederick, January 4 and 5, 1939 have been mailed to all paid-up members of the Society. If any grower has paid his 1939 membership, but has not received his copy of the Proceedings, please drop a post card to the Secretary, A. F. Vierheller, College Park, Md. Mistakes will occur or things may get lost in the mails. Memberships are coming in, but there are lots of the old members who have forgotten this little item. The dues are but one dollar a year. Other Societies with higher membership fees, are increasing in membership. Maryland can do the same. This is a time when the growers need to get together for closer cooperation in behalf of the fruit industry. Your Horticultural Society does a lot of things that you never hear about, that have to do with improvement of the fruit growing business. Better send in that membership *now.*

FROM SOUTH CAROLINA

Orchard Letter No. 5 (May, 1939) published by E. H. Rawl, Extension Horticulturist, Clemson Agricultural College, South Carolina contains some interesting peach data, as they present some actual counts made by the author in relation of fruit size, to the yield in bushels. Elberta peaches were counted, and it was found that a bushel of peaches (55 lbs.) contained number of fruits as follows:

1¾ inch diameter:	383 per bushel	2½ inch diameter:	159 per bushel
2 inch diameter:	293 per bushel	2¾ inch diameter:	127 per bushel
2¼ inch diameter:	215 per bushel	3 inch diameter:	98 per bushel

SPRAY THOSE TOPS

Don't forget the many examples published in the past regarding development of codling moth and scab in the tops of apple trees. New Jersey found that there was about 1/7 as much arsenical in the tree tops during critical codling moth control time, as was necessary. Some Indiana growers apply a special "top-off" spray between other sprays, if found necessary, hitting only the tree tops, and also it has been found that the upper third of the tree produces more scabby apples than the lower two thirds of the tree. Better climb a few trees, and see what's going on up there in the top.

CODLING MOTH BANDS

Codling moth bands should be in place about the middle of June. Use bands treated with beta-naphthol. Buy the band material prepared and ready for use. Two-inch bands are suggested, each 250 feet of band containing not less than 6¾ pounds of chemical. These bands weather out, so use fresh bands. If the trees have not been scraped, save your money, and don't use bands, as the idea is to remove all rough bark and encourage the worms that crawl down the tree, to enter the bands for their last long sleep.

APPALACHIAN APPLES, INC.

Appalachian Apples, needs no introduction. It is a cooperative effort organized by the growers of Virginia, Pennsylvania, West Virginia, and Maryland to publicize and advertise apples. It is beginning its fourth year, and can look back on three years of real accomplishment. If any grower wants information regarding past activities and results, just write Carroll R. Miller, Martinsburg, W. Va., who is Secretary-Manager of Appalachian

Senator H. F. Byrd, probably the world's largest individual apple grower, signs his 1939 Appalachian Apples subscription in the presence of C. Purcell McCue, President (right), and Carroll R. Miller, Secretary-Manager (left).

Apples, Inc. The 1939-1940 sign-up is now being conducted and every grower is urged to consider very carefully, the possibilities of this worthy activity. A. F. Vierheller, College Park, Md., is Secretary-Treasurer of the Maryland Division of Appalachian Apples, Inc., and will gladly furnish information, and receive subscriptions. This is a voluntary matter, and the subscriptions are based upon bushels of apples of U. S. Utility grade or better actually packed by the grower. Better look into this. Grower-Managed and Grower-Controlled.

THINNING

Each year, thinning is given a short discussion, for the average grower knows that this is a rather tedious and probably costly operation, although it has its rewards. We know that it offers a chance to remove culls; lightens the tree load, and reduces limb breakage; promotes size, and color, and also has some effect upon annual bearing. However, some growers have their

various market preferences to meet, so that while one grower may thin heavy for size, another grower thins lightly for export trade. Dr. G. F. Potter of New Hampshire gave a report on thinning, before the Maine State Pomological Society, and a digest of this report is given in the May, 1939, Minnesota Fruit Grower as follows:

"To get the full benefit from thinning it has to be done early in the season. The area of active foliage for the period of about 30 days after bloom in relation to the fruit on the tree is what determine the blossom for the succeeding season. That is very significant.

McIntosh.—On our McIntosh we thin to about 50 normal leaves to the apple. That is sufficiently severe and is done early enough in the season to break the biennial bearing habit and give us a crop each year. In 1935 when we thinned on the 20th of June, 21 days after bloom in a heavy crop year, we had approximately 25 percent bloom the next year and 373 pounds per tree which was a good crop. When we thinned on the 15th of July, 46 days after bloom, we seemed to have a slight effect in improving the crop for the succeeding year. When we thinned on the 10th of August, 62 days after bloom we had practically no effect on next year's crop. As for this year's crop, you cannot thin late in the summer without losing your yield and losing it fast. My opinion is that it will pay to thin our McIntosh early and keep them in high production and annual bearing.

Not All Varieties Alike.—Different varieties seem to have different degrees of this biennial habit. Very heavy thinning of the York variety in Maryland, Pennsylvania, and the Shenandoah Valley will help to bring the trees into annual bearing, but the growers and college people tell me they think it does not pay them to thin so very heavily. The fruit is over-size, they cannot dispose of it to advantage, and it does not seem to be the practical thing to do. Every variety is a law in itself. We got along so nicely with McIntosh that we set out to work with Baldwins, and you should see what a failure we got. We thinned down to 75 leaves per apple. How many of you can visualize 75 leaves per fruit? There are on the average perhaps 10 leaves to a fruit spur. That is plenty high. You would have to take the apples off about seven spurs for each apple left on. This thinning increased the diameter of the fruit one-quarter inch, increased the color 48 per cent, and reduced the average yield from 236 to 116 pounds. We thought we would get it back next year, but we didn't. I am inclined to think that both Baldwin and Wealthy are in the same class as York, and that we will not get an annual crop unless we thin them to an outrageous extent in the bearing year. I feel confident that Delicious is in the same class as McIntosh with regard to biennial bearing.

How to Thin.—We never pay any attention to the June drop in thinning. The thinning comes before the June drop, of course. There is plenty of data to show that if we thin early we overcome the June drop. If we reduce the number of apples early enough the tree will not drop its fruit any more. I have heard of a few instances where the trees were thinned just a day or two before the June drop. This is too late for the tree to change its mind.

We never leave more than one apple to a spur, and we reduce the apples to about one apple in at least four spurs. I think the best way to remove the fruit is to grasp the stem between the thumb and the first finger, and snap it off with the third finger. We find that clippers are slower and you are likely to cut off leaves that ought not to come off. I don't think I would bother to put the thinned fruit into a bag unless apple curculio are prevalent."

ABOUT JAPANESE BEETLE

If Japanese beetle continues to spread, it seems sensible to learn to live with it, and so we must know more about it. Maryland Extension Service News, May, 1939 reports:

"Avoiding trouble is sometimes more sensible than going out to meet it, especially in dealing with the Japanese beetle menace.

In spite of the fact that the Japanese beetle feeds on more than 200 different kinds of plants, it is also a well-known fact that there is a respectable list of plants which are not appreciably affected by the insect. Therefore, in planting the home grounds one might very profitably consider the question of whether to plant desirable shrubs and trees which will require annual spraying or those which may be nearly as good but which are free from attack.

The New Jersey Department of Agriculture reported a few years ago that the following trees are practically immune to Japanese beetle attack: Gingko, arborvitæ, cedar, fir, hemlock, larch, pine spruce, bald cypress, holly, beech, ash, black gum, sweet gum, magnolia, tulip tree, dogwood, red, white, black and scarlet oaks, maples (except Norway and Japanese), common locust, catalpa, white poplar, Carolina poplar, red mulberry, and Paulownia.

Shrubs which are practically immune include dwarf forms of some of the evergreens previously mentioned as well as the following: yew, mock-orange, box, sumac, smoke-tree, viburnum, hydrangea, barberry, sweet-shrub, umbrella-pine, cryptomeria, rockrose, retinospora, mountain laurel, rhododendron, leucothœ, Oregon hollygrape, azalea, privet, lilac, forsythia. Vines in this category include English ivy, honeysuckle, and clematis.

Of course, there will be some trees and shrubs, the worth of which will be so great that the owners will make every effort to save them. A good example of this type is the American elm which has distinctively arching branches and which is much sought after for planting to frame in the house. There is no very good substitute for this tree and its usefulness would justify every effort of the owner to save it."

INTERNATIONAL APPLE ASSOCIATION

Fruit growers can't be everywhere, so somebody must be on the job to look after their interests. International Apple Association is one organization that is always found in the thick of any battle that works for the good of the fruit industry. Their fine work in connection with all sorts of legislation, has saved fruit growers many dollars. Every grower who can possibly afford it, should become a member of this Association. R. S. Dillon, Jr., Hancock, Md., will furnish information or take your membership. Write him.

Have you read the advertisements?

CAN WE IMPROVE BORDEAUX?

Spray injury continues to be a problem, but until we know more about the possibilities of some of the newer materials, we will continue to use what we have. However, our sulfur and copper sprays are being improved from year to year. Bordeaux mixture with all its faults still continues as one of the stand-bys. In May, 1939—"Tennessee Horticulture" the editor writes:

"Because of foliage injury by the sulfur fungicides in the South, our grow-

AFTER APPLE BLOSSOM TIME
WHAT COMES NEXT ON THE

CODLING MOTH PROGRAM?

SEVERE INFESTATION

Suggested Schedule:
ORTHOL-K Summer Oil Spray
ORTHO Lead Arsenate
Blackleaf "40"
COPOSIL Fungicide
Lime

MODERATE INFESTATION

Suggested Schedule:
ORTHOL-K Summer Oil Spray
ORTHO Lead Arsenate
ORTHO Spreader
COPOSIL Fungicide
Lime

AVERAGE INFESTATION

Suggested Schedule:
ORTHEX Spreader-Adhesive
ORTHO Lead Arsenate
COPOSIL Fungicide
Lime

Adopt this "ORTHO" Balanced Spray Schedule with . . .

ORTHOL-K

Summer Oil Spray

and grow really *clean* fruit this year.

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CALIFORNIA SPRAY-CHEMICAL CORPORATION

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ORTHO SCIENTIFIC PEST CONTROL
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THE WORLD'S LARGEST MANUFACTURERS OF AGRICULTURAL SPRAYS

ers must fight our serious fungus pests with copper preparations, the most common of which is Bordeaux. Because, all too frequently, Bordeaux sprays injure the fruit, many growers have compromised by using too weak solutions.

Some growers manage to grow prize-winning, high-finish apples following a Bordeaux spray program. Perhaps a better understanding of this material will help us correct some of its faults. There are three factors in its preparation which should be heeded carefully.

First, we should remember that Bordeaux mixture is, to a certain extent, both a physical and a chemical combination of copper sulfate and lime in varying proportions and any difference in the properties of either material will result in a different end product . . . our spray solution. Except in its physical condition, copper sulfate varies but little and the 'snow' or granulated form is now almost universally used by fruit growers. The product we call 'lime' however, varies greatly in both chemical and physical properties. Without explaining these differences, we accept the findings of investigators, that the best form of lime for use in the preparation of instant Bordeaux, is a lime having 69% to 70% available calcium oxide (CaO) and ground fine enough for 99.5% of it to pass through a 325-mesh screen. High-magnesium (dolomitic) limes do not make as good Bordeaux as high-calcium lime. Agricultural lime is entirely unsuited for Bordeaux preparation. There is a right, and a wrong way, to mix these materials in the tank. When the tank is a quarter full of water, start the agitator, put the weighed copper sulfate on the tank screen and wash through slowly until the tank is three-quarters full. The lime can be treated similarly, but it is best made up into a thin, creamy mixture in a separate container and then poured through the screen. The agitator is kept going for a minute or two after the tank is full.

Starting with this properly prepared mixture of good materials, there is still plenty of opportunity to ruin the finish of an apple crop, by applying it at the wrong time or in the wrong manner. Bordeaux is least injurious when it dries rapidly on the tree. When the trees are damp after a rain or heavy dew in the early morning, or in late afternoon in cool, cloudy weather, it is likely to cause russeting. Another source of the russeting which has given Bordeaux a black mark is caused by using too much pressure or getting too close to the fruit with the guns. Remember that the surface layer of leaf and fruit tissue is very tender, and caustic materials, roughly applied, will roughen and russet it.

Remember our advertisers

THERE'S A REASON

In May 1939, "Virginia Fruit", Dr. Lee A. Strong, Chief of U. S. Bureau of Entomology stated that there were 624,000 different species of insects in the world, and 20,000 different species in the United States, of which 6,000 are actual pests. Also, some new ones creep in from time to time. The same thing also applies to plant diseases, and the scientist is constantly at work trying to work out life histories, finding some weak place where man may attack the pest and at least partially control it. The appearance in recent years, of such things as gypsy moth, Oriental fruit moth, Japanese beetle, Mexican bean beetle, and Dutch Elm disease, chestnut blight, cedar rust, pruni, and X disease of peach is the answer to those who wonder why we must spray almost continually to grow crops, when back in the "good old days", a little or no spraying gave us good crops.

ORCHARD SOILS

The statement of J. H. Gourley of Ohio Agricultural Experiment Station that "one end of a tree must be in the ground" impresses us that the soil will govern the growth and development of the tree. The realization that erosion is robbing the farms of soil has caused a lot of discussion about sods and cover crops that require little cultivation.

In May, 1938, Rural New Yorker, C. W. Ellenwood, of Ohio, advises growers to lay out a soil management system for the young orchard to build up a reserve against the time when little but maintenance is possible. He stated that more consideration must be given to orchard sites, as during the life of the orchard, the grower will be working with the first 12 to 15 inches of soil, no matter how deep the soil, nor how much it is drained by tile or how much he may work it with deep tillage tools. He also suggests that we separate our thinking of organic matter from that of fertilization, as it seems cheaper to buy nitrogen than to depend upon a cover crop to furnish it.

In young orchards, where a bulk of organic matter is needed, sudan grass (25 to 30 pounds of seed per acre), millet (40 to 50 pounds per acre), soybeans (1½ to 2 bushels per acre) or a combination of soybeans (1 bushel) and millet (15 pounds) is suggested. Buckwheat (6 pecks per acre) makes a rather good cover crop, and reseeds itself fairly well.

Among the winter covers, rye (8 to 10 pecks per acre) is most commonly used. Wheat is also used, but gives less tonnage of green material. Hairy vetch alone (15 to 20 pounds per acre) or combined with rye (5 to 6 pecks) is also a good cover crop. Sweet clover, alfalfa and the clovers are also adapted to annual covers but are better adapted to a sod system or an intermediate system where the orchard is run as sod then temporary cover.

Mr. Ellenwood offers a plan for converting a tilled orchard into a quick sod. Rye is sown in the fall, and timothy seeded with the rye. The following spring, a mixture of red clover (4 pounds), alfalfa (4 pounds), and alsike (2 pounds) is seeded. The rye is clipped about the middle of May, and again in 4 to 6 weeks. Normal rainfall will give enough growth to require another mowing in late August to early September. This works well where trees are 8 to 10 years old. After that, the main idea should be to maintain soils rather than to try soil-building. Another method for establishing a sod is to sow 4 pounds of red clover, 2 pounds alsike, 4 pounds alfalfa, and 4 pounds timothy per acre on a good seedbed in August. These recommendations are given for northern Ohio, and are to be adapted to individual growers' conditions. The author recommends complete fertilizer for the cover crop and application of complete fertilizer to the permanent sod about every 3 or 4 years. The use of a weed-hog for occasional breaking up of the sod is also suggested. In Maryland, the use of a disk to crack up the sod is the usual practice, where a weed hog is not available. Mr. Ellenwood also suggests mulching where practical, and the use of harrowing in preference to plowing.

Have you read the advertisements?

Mandy: "Ah wants a fire insurance policy fo' dat nigger husband ob mine."

Insurance Broker: "You mean you want a life insurance policy."

Mandy: "No, sah, ah sez fire insurance. Dat nigger's been fired fo' times in two weeks."

Peach Growers!

Picking Time Spray. Protect your peaches from brown rot at picking time and en route to market.

Spray the day before picking with ½ gallon Sulfocide and 1½ lbs. soap to 100 gallons of water.

This economical application has saved many a crop of peaches, let it save yours. There is no other substitute.

Para-Scalecide for Peach Borers. This is the most economical and effective modern control for peach borers. Treat the peach trees in the late summer before the fall rush bgins. Ask for descriptive folder "Peach Trees Need."

Apple Growers!

Non-poisonous Codling Moth Spray. At the peak of emergence of the second brood, spray with 1 pint D-X and ¾ gallon of Summer Spra-Cream. This spray costs less than any other summer oil combination and does not gum up brushes in the packing house. It is the most effective spray you can use. It kills live moths, destroys eggs, and remains present for many days.

Leaf Hopper Control. The above combination for codling moth also kills every leaf hopper you hit. Or better yet us D-X 1 to 800 before the winged forms appear. We have prepared a splendid treatise on this subject which is yours for the asking.

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